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RESONANT CONTROLLED QUBIT SYSTEM

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A This application claims priority to United States Patent Application serial number 60/374,261 filed April 20, 2002; United States Patent Application serial number 60/385,123 filed May 31, 2002; and United States Patent Application serial number 60/395,704 filed July 12, 2002, each of which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

The present invention relates to quantum computing. More specifically, the present invention relates to entangling the quantum state of superconducting qubits.

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is related to the following applications: United States Application Serial No. 09/452,749 entitled "Permanent Readout Superconducting Qubit" filed December 1, 1999; United States Application Serial No. 09/872,495 entitled "Quantum Processing System And Method For A Superconducting Phase Qubit" filed June 1, 2001; United States Application Serial No. 0/025,848 entitled "Finger Squid Qubit Device" filed December 17, 2001; United States Application Serial No. 60/341,794, entitled "Characterization And Measurement of Superconducting Structures" filed December 18, 2001; United States Application Serial No. 60/349,663, entitled "Two Junction Phase Qubit" filed January 15, 2002; United States Application Serial No. 60/383,597 entitled "Resonant Controlled Qubit System" filed April 20, 2002, each of which is incorporated herein by reference in their entirety.

BACKGROUND

In 1982 Richard Feynman introduced the concept of a "quantum simulator." See Feynman, 1982, "Simulating Physics with Computers", *Int. J. Theor. Phys.* 21, p. 467, which is hereby incorporated by reference in its entirety. Soon thereafter it was determined that a quantum system could be used to yield a potentially exponential time saving in certain types of intensive computations. See Deutsch, 1985, "Quantum Theory, the Church-Turing Principle and the Universal Quantum Computer", *Proc. of the Roy. Soc. of London* A400, p. 97, which is hereby incorporated by reference in its entirety.